AUG 24 1923

VOL. 50 AUGUST, 1923 No. 8

BULLETIN

OF THE

TORREY BOTANICAL CLUB

Editor

ALEXANDER WILLIAM EVANS

Associate Editors

Jean Broadhurst
James Arthur Harris
George T. Hastings
Marshall Avery Howe
Michael Levine
George Elwood Nichols
Arlow Burdette Stout
Norman Taylor

CONTENTS

Notes on Fabaceae—II ..... PER AXEL RYDBERG 261
New American Connaraceae ..... S. F. BLAKE 273
Two new species of Cuscuta from Peru ..... T. G. YUNCKER 277
INDEX TO AMERICAN BOTANICAL LITERATURE 279

PUBLISHED FOR THE CLUB

PRESS OF
THE INTELLIGENCER PRINTING COMPANY
LANCASTER, PA.

Entered at the Post Office at Lancaster, Pa., as second-class matter

THE INTELLIGENCER PRINTING CO.
LANCASTER, PA.

PRINTERS AND BINDERS OF

Technical and Scientific

Books and Periodicals

ESTIMATES FURNISHED

American Fern Journal

An illustrated quarterly devoted to the general study of ferns. Subscription, with membership in th AMERICAN FERN SOCIETY, $1.50 per annum; without membership, $1.25; to foreign subscribers, $1.35; life membership in the Society, $25.00. Volume I, six numbers, $3.00; other volumes, $1.25 each. Matter or publication should be sent to R. C. BENEDICT, 332 East 19th Street, Brooklyn, N. Y.; subscriptions and other business communications to E. J. WINSLOW, Auburndale, Mass.

LABORATORY SUPPLIES

OF EVERY DESCRIPTION

MICROSCOPES AND ACCESSORIES

Slides, Covergiasses, Stains, Glassware, Etc.

A well assorted stock always on hand

MEYER CAMERA & INSTRUMENT CO., Inc.

80 Third Avenue NEW YORK

Please mention the "Bulletin" when answering advertisements.

Vol. 50 No. 8

BULLETIN

OF THE

TORREY BOTANICAL CLUB

AUGUST, 1923

Notes on Fabaceae—II

PER AXEL RYDBERG

HOMALOBUS Nutt. (*con.*)

D. CAMPESTRES

This group differs from the *Tenelli* not only in the narrow strictly sessile pod but in the acute keel-petals, a character which as far as I know separates it from all the other groups of *Homalobus*.

21. HOMALOBUS CAMPESTRIS Nutt. This was described from specimens collected on the "Colorado of the West," meaning some of the tributaries of the Green River. One specimen of Nuttall's is in the Torrey Herbarium and is in flower. The calyx is 5 mm. long, more or less black-hairy; the lobes are subulate, decidedly longer than broad; nearly every leaf has one or two pairs of lateral leaflets, and the terminal leaflet is represented by the flattened, somewhat falcate prolongation of the rachis. The corolla is evidently ochroleucous, without a trace of purple. Gray, in transferring this species to *Astragalus*, evidently confused it with some other member of the group, describing the leaves as having often nine to thirteen leaflets and the corolla as being yellowish white, usually tinged with purple. He also regarded *H. tenuifolius* Nutt. as a depauperate form and evidently had in mind *H. hylophilus* Rydb., *H. oblongifolius* Rydb. and their allies. As *Astragalus campestris* was preoccupied, Greene substituted the name *A. convallarius*. Jones at first made the plant *A. serotinus campestris*,* but cited under this name specimens belonging to other species, one of them, *6015n*,

* Proc. Calif. Acad. II. **5**: 668. 1895.

[The BULLETIN for July (**50**: 231–260. *pl. 13, 14*) was issued July 27, 1923.]

being *H. humilis*. Later* he changed the name to *A. decumbens convallarius*. Even at that time, however, he had a misconception of certain species; for, on a later page of the same article, he changed *Astragalus junceus* (Nutt.) Gray to *A. diversifolius roborum* and labeled with this name specimens belonging to *H. campestris*.

Macbride† united *A. campestris* and *A. junceus*, regarding "the relative length of the calyx-lobes and the presence or absence of black pubescence" as "trivial variations" and of "no practical taxonomic value." Perhaps they are so and perhaps *H. campestris*, *H. junceus* and *H. junciformis* should be only one species, but he has used one of these characters, the longer calyx-lobes, together with the presence of lateral leaflets, as a character to separate his *A. campestris diversifolius* (Gray) Macbr. from the typical form of the species. These characters are just those that characterize the type.

Only two of the specimens cited by Macbride under the variety *diversifolius* are found in New York herbaria: the first of these is Nuttall's, from the "sources of the Platte," Wyoming, which represents the type collection of *H. orthocarpus* Nutt.; and the second is *Baker 242*, from Cedar Edge, Colorado, which matches the type of *H. campestris* in every respect. Evidently Macbride has misinterpreted *A. diversifolius* A. Gray (see below). Of the specimens in the Gray Herbarium, *Canby 84*, from Helena, Montana, is *H. junceus;* so also are *Watson 92* and *Nelson & Macbride 1292*, both from Idaho. The rest represent the typical *H. campestris*, except *Macbride & Payson 3183*, in flower only, from Clyde, Idaho, which may be *H. orthocarpus*. In the herbaria of the New York Botanical Garden and Columbia University, the following specimens of *H. campestris* are found:—

WYOMING: *Nuttall.*

UTAH: Glenwood, *Ward 227;* Hooper, *Leonard 98;* Tropic, *Jones 5312h;* Mandan, *Mulford 118;* Salt Lake City, *Garrett 984;* Pavant Mountains, *Eggleston 10149.*

COLORADO: Cedar Edge, *Baker 242;* Como, *Crandall;* Middle Park, *Patterson;* Glenwood Springs, *Osterhout;* White River, *Mrs. Dun.*

---

* Contr. W. Bot. **10:** 58. 1902.

† Contr. Gray Herb. II. **65:** 35. 1922.

22. HOMALOBUS JUNCEUS Nutt. The duplicate of the type in the Torrey Herbarium is in fruit but shows a white-hairy calyx with very short calyx-lobes and leaves with no or very small lateral leaflets. Sheldon thought that this and *Astragalus diversifolius* represented but one species and applied the latter name to it, as the earlier *A. junceus* was preoccupied by *A. junceus* Ledeb. Since, however, *A. diversifolius* is a synonym of *H. orthocarpus*, *A. junceus*, if transferred to *Astragalus*, would be without a name. This species is much more common than *H. campestris*. I shall therefore not enumerate any specimens. Most of those cited by Macbride under *A. campestris* belong here. Jones, as already noted, named the species *A. diversifolius roborum*.

23. HOMALOBUS JUNCIFORMIS (A. Nels.) Rydb. The status of this species is somewhat problematical, since it has the short calyx-lobes of *H. junceus* and the black-hairiness of *H. campestris*. It is stouter than either, with larger flowers and broader leaflets. Standley regarded it as identical with *H. orthocarpus*, but that species has smaller flowers and a much broader pod. The mature pod of *H. junciformis* is unknown, but the young pod suggests a similarity to that of *H. junceus*. Jones* made *H. junciformis* a synonym of *A. diversifolius*, evidently not being acquainted with the true *A. diversifolius*. The only specimens of *H. junciformis* seen are:—

WYOMING: Fort Steele, *A. Nelson 4839;* Point of Rocks, *A. Nelson 3081;* Leucite Hills, *A. Nelson 4668*.

24. HOMALOBUS ORTHOCARPUS Nutt. The duplicate of the type in the Torrey Herbarium shows only the upper part of the plant, but Nuttall states that the lower leaves bear several leaflets, while the upper are more or less reduced to the rachis. This fact furnished Gray the name *Astragalus diversifolius*, when he found that *A. orthocarpus* was preoccupied by *A. orthocarpus* Boiss. In *H. orthocarpus* the calyx is white-hairy, the lobes are deltoid and not much longer than broad, while the pod is much broader than in the related species, in the duplicate of the type being about 2 cm. long and 4 mm. wide. In the herbarium of the New York Botanical Garden the only specimen like the type is *Goodding 1084* from Juab, Utah, which has been

* Contr. West. Bot. **10**: 68. 1902.

referred to *A. episcopus* Wats. According to Macbride *A. episcopus* has sessile pods; one might suppose from this that the latter species was a synonym of *H. orthocarpus;* but it is not, since it really has a short-stipitate and glabrous pod. There is also a specimen collected at Salida, Colorado, *Johnston & Hedgecock 634*, which resembles Goodding's very much, but it is in flower only and therefore doubtful. So also is *Macbride & Payson 3183* from Idaho, to which reference has already been made.

25. HOMALOBUS DECUMBENS Nutt. The specimen in the Torrey Herbarium consists of two pieces, a small plant with five attached branches and a single loose branch; the former bears one mature pod and two small racemes in bud; the separate branch bears five immature pods. All the pods are minutely pubescent and decidedly arcuate, and the mature pod is nearly 2.5 cm. long and 3 mm. wide; the calyx lobes are subulate and less than half as long as the tube. The only specimens in the herbarium of the New York Botanical Garden similar to the type are *Hall & Harbour 142*, in part, from Colorado, and *Goodding 1429* from Wood's Creek, Wyoming. The pods of the latter are very young and scarcely show any indication of being arcuate. The specimens in the Gray Herbarium bearing the same number have a better developed pod, and I would refer them to *H. microcarpus*.

A specimen in flower, from Mammoth Hot Springs, Wyoming, named by the collectors *A. decumbens*, viz., *Aven & Elias Nelson 5649*, resembles this species in habit but is more canescent. Macbride has cited this specimen under *A. divergens*, but I rather think that it belongs either here or under *H. tenuifolius* Nutt.

26. HOMALOBUS SEROTINUS (A. Gray) Rydb. Gray described *Astragalus serotinus* as having glabrous or minutely pubescent pods, and Macbride says in his key, "pods glabrous or nearly so." There are three sheets of Cooper's collection in the New York herbaria, and in all three the pods are minutely strigose. The species varies much in the width of the leaves. When they are very narrow the plant resembles much in habit *H. campestris*, but the tip of the keel is always purple and the leaflets more numerous and glabrate above.

WASHINGTON: Okanogan River, *Cooper;* Peshasti, *Sandberg & Leiberg 473;* Loomis, *Griffiths & Cotton 343;* without locality *Vasey 273.*

OREGON: Wallowa County, *Sheldon 8065.*

MONTANA: Big Fork, *Umbach 621.*

ALBERTA: Tunnel Mountain, *McCalla 2134.*

BRITISH COLUMBIA: Nicola Valley, *Dawson 4269.*

27. HOMALOBUS STRIGOSUS (Coult. & Fish.) Rydb. This resembles *H. Palliseri* in habit but differs in the pubescent pod and longer calyx-lobes. Jones* claims that it is the same as *H. serotinus.* It is true that the two resemble each other very much in general appearance, but the calyx-lobes in *H. strigosus* are almost twice as long and the leaves are cinereous on both sides. Macbride regards it as a variety of *H. serotinus.*

ALBERTA: Vermillion Range, *Moodie 1238,* in part.

MONTANA: Park County, *Tweedy;* St. Ignatius Mission, *MacDougal 290;* Columbia Falls, *Williams 1003;* Helena, *Kelsey;* Tobacco Mountain, *Butler;* Deer Lodge River, *Cooper.*

WYOMING: Mammoth Hot Springs, *Mearns 1329;* Alcova, *Goodding 146;*† Sheridan and Buffalo, *Tweedy 3168;* Big Horn, *Tweedy 2355.*

IDAHO: Beaver Canon, *Watson 91;** Howe, *Macbride & Payson 3106,*† in part; Mammoth Hot Springs, *Nelson & Nelson 5648;*† Salmon, *Payson & Payson 1762.*

28. HOMALOBUS TENUIFOLIUS Nutt. The duplicate of Nuttall's type in the Torrey Herbarium is a small plant about 7 cm. high and bears two racemes, one with six flowers and the other with a single pod. The calyx is 2 mm. long, including the lobes, which are about 0.5 mm.; the corolla is about 4 mm. long, and the pod, 14 mm. long and 3 mm. wide, is strigose; the leaflets are narrowly linear-subulate. In the herbarium of the New York Botanical Garden there is only one specimen in fruit like it, *Tweedy 259.* The others are larger and would be referred to *H. decumbens* if they were not so canescent and if the pods were not straight. Gray, as already noted, thought that the species was a depauperate form of *H. campestris.* Coulter and Nelson seem to include it in that species, while Macbride united it with

* Proc. Calif. Acad. II. **5**: 668. 1895.

† Referred by Macbride to *A. divergens* Blankinship.

A. divergens Blankenship. It would have been more logical to reduce it to a variety of *A. serotinus*. It is not more distinct from that species than *A. strigosus* or *A. Palliseri*. None of the specimens cited by Macbride and seen by me belong to *H. tenuifolius* except *Parry 81* and *A. Nelson 9648*. See under *H. strigosus* and *H. decumbens*.

WYOMING: Rocky Mountains, *Nuttall; Parry 81;* Mount Leidy, *Tweedy 259;* Medicine Bow, *A. Nelson 9648*.

MONTANA: Lima, *Rydberg 2706;* Red Rock, *Shear 5043*.

COLORADO: Lake City, *Pease; Hall & Harbour 142*, in part.

29. HOMALOBUS DIVERGENS (Blankinship) Rydb. In habit the plant resembles the preceding, but the leaflets are much broader and shorter. I have not seen the type, but Blankinship's illustration (except the pod) represents the plant I have in mind. In the original diagnosis the pod is described as stipitate and is so figured. In all the specimens I have seen it is sessile. Blankinship might have had a mixture containing pods of some other species, as for instance the alpine form of *H. Bourgovii*. Not having seen the type, it was not so strange that I, under these circumstances, redescribed the plant as *H. camporum*.* This is the name it would bear, if by chance *Astragalus divergens* should be different from our present conception.

WYOMING: Leckie, *Merrell & Wilcox 537, 585;* Steamboat Mountain, *A. Nelson 7085;* Laramie Hills *198;* Bird's Eye, *Nelson 9559*.

MONTANA: Helena, *Rydberg 2708*.

IDAHO: Beaver Canon, *Rydberg 2707*.

UTAH: Alta, *Jones 1210*.†

30. HOMALOBUS HUMILIS Rydb. Macbride has transferred this to *Astragalus*, under the name *A. Carltonii*, as there was an older *A. humilis* Bieb.

UTAH: Bullion Creek, *Rydberg & Carlton 7147;* Delano Peak, *7219* and *7219a;* Mt. Ellen, *Jones 5670;* Panguitch Lake, *6015n* (this with narrow leaflets).

31. HOMALOBUS OBLONGIFOLIUS Rydb. Macbride regarded this as a variety of *H. hylophilus*. As far as I know the plant

* Bull. Torrey Club **32**: 666. 1906.

† This Macbride refers to *A. Carltonii* Macbride, i. e. to *H. humilis*, but the pod is that of *H. divergens* and *H. tenuifolius*.

is confined to Colorado. Macbride cites two specimens from Wyoming, *Nelson 869* and *Payson 2068*. The former, as represented in the Columbia University Herbarium is typical *H. hylophilus*, having glabrous pod and broad leaflets. The other number I have not seen.

COLORADO: Cerro Summit, *Baker 409;* Nederlands, *Clokey 3284;* Leadville, *Jones,* Teller, *C. S. Sheldon 108;* Marshall Pass and Leadville, *Jones;* Pinkham Creek, *Goodding 1472,* Delta, *N. F. T. Nelson 181;* without locality, *Parry*, in 1864.

32. HOMALOBUS PAUCIJUGUS Rydb. This resembles *H. tenuifolius* in habit and pod but differs in the few leaflets. As there is an older *Astragalus paucijugus* Schrenk, Macbride renamed my species *A. Garrettii*.

33. HOMALOBUS DECURRENS Rydb. This was also renamed *A. Rydbergii* by Macbride, on account of *A. decurrens* Boiss.

COLORADO: Golden, *Jones 528; Greene;* Estes Park, *Osterhout 2222;* Lake Eldora, *Clokey 3201;* Jefferson County, *3808;* Larimer County, *Osterhout A;* Stove Prairie and Como, *Crandall;* Gray Back, *Rydberg & Vreeland 5960;* Tolland, *Johnston & Hedgecock 664;* without locality, *Hall & Harbour 142*, in part; Central City, *Scovell*.

34. HOMALOBUS MICROCARPUS Rydb. This was reduced by Macbride to a synonym of *A. decumbens*. There would have been more reason for reducing it to, or for making it a variety of, *H. divergens*, since the general habit, the form of the leaflets and the shape of the pod approach that species, but the whole plant is greener, more luxuriant and more erect. One specimen, *Watson 287* from the Uintah Mountains, Utah, may belong here. It has the small pod and the flowers of *H. microcarpus* but is taller, with very long peduncles, 10–14 cm. long, longer leaves, up to 15 cm. long, and more numerous leaflets, the pod is hairy with short black hairs. Macbride erroneously referred the specimen to *Astragalus serotinus* var. *Palliseri*, which has glabrous pods.

COLORADO: east of Rabbit-Ear Range and on the forks of Poudre River and Big South, *Crandall;* Como, *Crandall & Cowen 131;* North Park, *C. F. Baker;* Steamboat Springs, *Osterhout 2774;* Empire, *Tweedy 5642;* without locality, *Hall & Harbour 143; Parry 435*.

WYOMING: Woods Creek, *Goodding 1429.*

35. HOMALOBUS HYLOPHILUS Rydb. This is the most common species of the group in the Northern Rockies, extending as far south as northern Utah and the Black Hills, but not being found in Colorado. Jones* claims that this is a shade form of *A. decumbens convallarius*, due mainly to his misinterpretation of *A. convallarius*, which latter was based on *Homalobus campestris* Nutt.

36. HOMALOBUS PALLISERI (A. Gray) Rydb. Macbride reduced this to a variety, *A. serotinus Palliseri* (Gray) Macbride. It is more closely related to *H. hylophilus*, having the same glabrous pod, but the leaflets are much narrower and the calyx-lobes shorter. There are, however, specimens of *H. hylophilus* which have nearly as narrow leaflets as those of *H. Palliseri.* The Montana specimens of *H. Palliseri* have longer pods and in that respect approach *H. hylophilus.*

ALBERTA: Rocky Mountains, *Bourgeau;* headwaters of the Saskatchewan, *S. Brown 923;* Banff, *S. Brown 80; VanBrunt 6; Canby 41; Barber 105, 279.*

BRITISH COLUMBIA: Carbonate, *Shaw 227, 241;* Green, *3210;* Kettle River, *J. M. Macoun 63152, 63756;* Lake Osoyoos, *70440;* Canmore, *J. Macoun 15;* Maligne River, *Spreadborough 19310;* Armstrong, *E. Nelson 133.*

WASHINGTON: Concomilli, *Griffiths & Cotton 319;* Ophir, *Elmer 528;* Walla Walla, *Brandegee.*

MONTANA: Spanish Basin, *Flodman 636;* Bozeman, *Wilcox 115;* Old Hollowtop, *Rydberg & Bessey 4489;* Bridger Mountains, *4494;* Old Sentinal, *MacDougal 168, 172;* Terminus, *Watson 88.*

37. HOMALOBUS DETRITALIS (M. E. Jones) Rydb. This has been placed in the present group but probably does not belong here. In general habit it resembles the *Simplicifolii*, but the leaves have five leaflets. Whether it has the acute keel-petals characteristic of the *Campestres* or not I do not know, as I did not look for that character when I saw the type some years ago.

E. STENOPHYLLI

Pod glabrous, except the stipe.

Leaflets narrowly linear.

* Contr. West. Bot. **10:** 69. 1902.

Leaflets few, the terminal one wanting or continuous with the rachis; calyx-lobes lanceolate, 1.5–2 mm. long.	38. *H. Coltoni.*
Leaflets many, the terminal one present; calyx lobes triangular, 1 mm. long or less.	
Leaflets slightly strigose beneath or glabrous throughout.	39. *H. stenophyllus.*
Leaflets strigose-cinereous on both sides.	
Stipe of the pod fully half as long as the body, ocrolla ochroleucous or white.	40. *H. MacGregorii.*
Stipe about one third as long as the body; corolla purple.	41. *H. canovirens.*
Leaflets linear-oblong to oval, glabrous above, strigose beneath.	42. *H. Antiselli.*
Pod strigose throughout.	
Leaflets linear; raceme elongate lax.	
Body of the pod 2–2.5 cm. long abruptly contracted at the base, straight.	43. *H. filipes.*
Body of the pod 2.5–3 cm. long, gradually tapering at each end, slightly arcuate.	44. *H. inversus.*
Leaflets elliptic; raceme short dense.	45. *A. gaviotus.*

38. **Homalobus Coltoni** (M. E. Jones) Rydb. comb. nov.
Astragalus Coltoni M. E. Jones, Zoe **2**: 237. 1891.
Homalobus episcopus Rydb. Bull. Torrey Club **40**: 53, in part. 1913. Not *A. episcopus* S. Wats., 1875.

Astragalus Coltoni was based on specimens from Castle Gate, Utah. It has the habit of *H. junceus* and *H. campestris*, but the pod has a slender stipe, the corolla is purplish, the wings are nearly as long as the banner and the keel is rounded at the apex. It is therefore more closely related to *H. stenophyllus*. I had mistaken it for *H. episcopus* (see my notes under that species on pages 184–5).

UTAH: Castle Gate, *Jones*, in 1890 and 1894; southern Utah, *Bishop*, in 1872.

NEW MEXICO: Carrigo Mountains, *Matthews*, in 1892.

39. HOMALOBUS STENOPHYLLUS (T. & G.) Rydb. This is the best known species of the group and was the first one published, the original name being *Astragalus leptophyllus* Nutt. As that name was preoccupied, *A. stenophyllus* was afterwards substituted. Torrey & Gray suggested that the species might belong in the genus *Homalobus*. The type was collected in flower, and the fruit remained unknown for some time. The type is

perfectly glabrous, except for the more or less black-strigose calyx, but sometimes the upper part of the stem and the lower surface of the leaflets are slightly strigose. This is the case with *S. Watson 283*, which was mistaken for *S. filipes*. Watson's description of that species also applies to *H. stenophyllus*.

BRITISH COLUMBIA: Nicola Valley, *G. M. Dawson 4269*, in 1877; also *J. Macoun*, in 1889.

OREGON: Andrews, *Griffiths & Morris 523;* Hoover Creek, *Leiberg 140;* Juniper Springs, Malheur County *2264;* between Dayville and Mitchell, *Lawrence 1024;* east of Heffner, *582 A;* Blue Mountains, *895;* Burns, *Peck 3029;* without locality, *Nivius*.

IDAHO: Big Willow, Canyon County, *Macbride 161;* Mackay, *1414;* House Creek, *Nelson & Macbride 1761;* Shoshone, *1165;* Martin, *Macbride & Payson 3079;* Reynolds Creek, *Macbride 1029;* Big Butte, *Palmer 240*.

NEVADA: Quinn River Crossing, *Griffiths & Morris 172;* Palisade, *M. E. Jones*, in 1882; Pah-Ute Mountains, *S. Watson 283;* Trucke Pass, *Kenedy 1314;* Alleghany Creek, *Nelson & Macbride 2166;* Reno, *Jones*, in 1897; Montana headwaters of the Missouri, *Wyeth*.

WASHINGTON: Coulee City, *Henderson 2358*.

40. **Homalobus MacGregorii** Rydberg, sp. nov.

A perennial, with a cespitose caudex; stems strigose, striate; lower stipules triangular, scarious, connate, the upper ones more herbaceous, distinct; leaves 5–8 cm. long; leaflets thirteen to nineteen, linear, 10–15 mm. long, 1–2 mm. wide, strigose on both sides; peduncles 1–2 dm. long; racemes lax, 5–12 cm. long; bracts subulate, 2–3 mm. long, calyx strigose, the tube 4–5 mm. long, the teeth triangular, 1 mm. long or less; corolla ochroleucous or white; banner 12 mm. long, obovate; wings 11 mm. long, the blade obliquely oblanceolate, equalling the claw; keel-petals 10 mm. long, rounded at the apex, the blade broadly lunate with a rounded basal auricle; pod stipitate, the stipe 12–15 mm. long, slightly pubescent, the body glabrous, linear-elliptic, acute at each end, 2.5 cm. long, 5–6 mm. broad.

TYPE collected near Frazier Borax Mine, Mount Pinos, Ventura County, California, June 12–14, 1908, *Abrams & McGregor 219* (herbarium of the New York Botanical Garden).

This species is related to *H. stenophyllus* but the stem and leaves are strigose-canescent. It has been mistaken for *H. An-*

tiselli but the leaflets are much narrower and pubescent on both sides. Besides the type, the following specimens belong here.

SOUTHERN CALIFORNIA: Kenworthy, *H. M. Hall 1182;* San Bernadino Mountains, *Parish Brothers 1281.*

LOWER CALIFORNIA: Orcutt, in 1885; *856*, in 1883.

41. HOMALOBUS CONOVIRENS Rydb. *Astragalus Coltoni moabensis* M. E. Jones. This is also related to *H. stenophyllus*, but the leaves and stem are densely grayish strigose, the stipe much shorter, the corolla dark bluish purple.

UTAH: Western slope of La Sal Mountains, *Rydberg & Garrett 8536, 8564;* La Sal Mountains, *Jones*, in 1993.

COLORADO: Naturita, *Payson 336.*

42. **Homalobus Antiselli** (A. Gray) Rydb. comb. nov.

Astragalus Antiselli A. Gray, Bot. Calif. 1: 152. 1880.

This species differs from the three preceding in the broader leaflets, glabrous above and strigose beneath. *A. Hasseanus* Sheld.* is without doubt the same.

CALIFORNIA: Santa Catalina Island, *Rixford*, in 1914; Sulphur Mountains, *Abrams & McGregor 40;* Santa Inez, *Mrs. Curran*, in 1885; Ventura, *Elmer 3616;* Santa Barbara, *S. F. P.* [*Peckham ?*]; *Torrey 92 bis;* Buenaventura, *Hasse*, in 1888.

43. HOMALOBUS FILIPES (Torr.) Heller. This is very closely related to *H. stenophyllus* and distinguished only by the strigose pod and strigose stem and leaves. The two species have been confused and may not be specifically distinct.

WASHINGTON: Fort Okanogan, *Pickering*, in U. S. Exploring Expedition; Grand Coulee, *Griffiths & Cotton 440;* Ritzville, *Sandberg & Leiberg 163;* Sprague, *Sandberg & Leiberg*, in 1893; Ellenburg, *Piper 2717;* Yakima Region, *Brandegee 732;* Crab Creek, *Saksdorf 281.*

OREGON: Alkali, *T. Howell*, in 1882.

NEVADA: West Humboldt Mountains, *Heller 10631.*

44. **Homalobus inversus** (M. E. Jones) Rydb. comb. nov.

Astragalus inversus M. E. Jones, Zoe. 4: 276. 1893.

This is closely related to *H. filipes*, differing mostly in the longer, more tapering and slightly curved pod.

* Minn. Bot. Stud. 1: 124. 1894.

CALIFORNIA: Susanville, *Brandegee;* same locality, *Jones;* Lava beds, Modoc County, *M. S. Baker,* in 1893.

45. **Homalobus gaviotus** (Elmer) Rydb. comb. nov.

Astragalus gaviotus Elmer, Bot. Gaz. **39**: 54. 1905.

This species is referred with some doubt to this group as the flowers have not been seen. The pod is strigose, nearly straight on the upper suture, the stipe is shorter than in the other species, the raceme is short even in fruit and the leaflets broad.

CALIFORNIA: Gaviota, *Elmer 3759;* same locality, *Eastwood 55* (determined erroneously as *Phaca canescens* Nutt.).

New American Connaraceae

S. F. Blake

Connarus megacarpus sp. nov.

Tree; leaflets 7 or 9, elliptic-oblong, 7.2–14.5 cm. long, 3–4.5 cm. wide, emarginate, rounded at base, coriaceous, glabrous above, densely rufid-velvety beneath, short-petioluled; fruits spicate on the rufid-velvety branches of the panicle; follicle densely and persistently rufid-velvety, not striate or wrinkled, the stipe about 8 mm. long, the body 3–3.5 cm. long, 2–2.3 cm. wide, the beak stout, 2–4 mm. long.

Petiole (3.5–4.5 cm. long) and rachis (6–12.5 cm. long) stout, terete, persistently cinereous-velutinous; petiolules similar, 2–3 mm. long; leaflets elliptic-oblong or slightly elliptic-obovate, short-pointed with emarginate apex, rounded and emarginulate at base, narrowly revolute-margined, brownish-green and shining above, densely and closely rufid- or ochroleucous-velvety on whole surface beneath, the lateral veins about 7 pairs, arcuate-joined near margin, prominulous beneath, scarcely so above, the secondaries obscurely reticulate beneath, the costa impressed above, prominent beneath; panicles about 13 cm. long, about as broad, the flowers sessile; calyx (persistent at base of fruit) rufid-velvety, 4 mm. long; fruiting follicle solitary, the body obovate-oval, glabrous inside, stout-apiculate at apex of the straight side; seed 2 cm. long, 1 cm. wide, the aril about 9 mm. long.

British Guiana: abundant along the Demarara River, November 25, 1913, *C. D. Mell* (type in U. S. National Herbarium, No. 694130).

Similar in most characters to *Connarus suberosus* Planch. and *C. Perrottetii* (DC.) Planch., but both these species have fruits not over 2 cm. long.

Rourea adenophora sp. nov.

Small tree or vine; leaflets 3–7, elliptic to oval or oval-ovate, 2.5–13 cm. long, caudate-acuminate, rounded at base, firmly pergamentaceous, shining and densely prominulous-reticulate on both sides, puberulous on the costa on both sides

and on the chief veins beneath, otherwise glabrous; panicles densely stipitate-glandular and puberulous; flowers small; sepals broadly ovate to suborbicular; follicle solitary, glabrous, 1.2–1.6 cm. long.

Branches puberulous, glabrate, the younger purplish brown; petiole (2.5–4.5 cm. long) and rachis (2.2–5.5 cm. long) rather densely spreading-puberulous, often with short glandular hairs intermixed; petiolules 2–4 mm. long; leaflets chiefly elliptic, the caudate tip about 3–12 mm. long, obtuse, the lateral leaflets (decreasing in size toward base of leaf) 2.5–10.2 cm. long, 1.3–4.5 cm. wide, the terminal leaflet 8.5–13 cm. long, 3.5–5 cm. wide, the chief lateral veins 4 to 6 pairs; panicles thyrsoid, 9–10 cm. long, the bracts minute, lanceolate, about 1 mm. long, the branches 5–10-flowered, the pedicels slender, 2–3 mm. long, jointed near base; calyx lobes (in submature flowers) 5, imbricate, the outer broadly ovate or suborbicular-ovate, acutish or acute, the inner suborbicular, obtuse or rounded, 1.5–2 mm. long, 1.5–1.8 mm. wide, about twice as long as the tube, stipitate-glandular, ciliolate, and especially toward apex puberulous; petals (submature) oval, obtuse, equaling the calyx lobes; stamens 10, glabrous, the filaments dilated and connate at base; carpels 5, sparsely pilose; calyx in fruit accrescent, 4 mm. long, the lobes oval or oval-ovate, firm; fruit sessile, included at base by the calyx, curved, glabrous, obscurely striatulate; seed 1 cm. long; aril 3 mm. long.

PANAMA: woods between Gatun and Lion Hill, Canal Zone, altitude 10–20 meters, January 26, 1911, *H. Pittier 2566* (type in U. S. National Herbarium, No. 676722); forests around Puerto Remedios, Chiriquí, altitude 10–30 meters, March 31, 1911, *H. Pittier 3380*.

According to Mr. Pittier's notes, No. 2566 was a vine with yellowish green flowers, and No. 3380 a small tree with red fruit. The species is related to *R. glabra* H. B. K., but is easily distinguished by its densely stipitate-glandular and puberulous panicles. In fruit the glands are for the most part deciduous, although the hairs persist.

Rourea Pittieri sp. nov.

Vine; branches densely griseous-pilosulous, glabrate; leaflets 5 or 7, oval or the lower suborbicular-ovate, 5–11.5 cm. long, 3–6.7 cm. wide, short-acuminate, rounded at base, pergamenta-

ceous, densely prominulous-reticulate on both sides, shining above and puberulous on the costa, otherwise glabrous, paler or glaucescent beneath and rather densely spreading-pilosulous with dull hairs on all the veins and veinlets or on the whole surface; panicles pyramidal, branched usually from the base, densely griseous-pilosulous with spreading hairs; pedicels 4–5 mm. long; calyx 3.5–4 mm. long, densely griseous-pilosulous, the lobes ovate; petals 4.5 mm. long; follicle glabrous, striatulate, about 1.4 cm. long.

Petiole (2.2–8 cm. long) and rachis (3.5–8 cm. long) densely griseous-puberulous, glabrescent; petiolules 2–4 mm. long; leaflets oval or the lower sometimes suborbicular-ovate, the lateral 5–11 cm. long, 3–6 cm. wide, the terminal 9–11.5 cm. long, 5–6.7 cm. wide, the extreme apex obtuse, the chief lateral veins about 6 pairs; panicles 8–16 cm. long (including peduncle), the bracts minute, about 1 mm. long, the branches erectish or spreading, few- to many-flowered, the pedicels jointed near the base; calyx lobes erect, broadly ovate, 3 mm. long, 2 mm. wide, about three times as long as the tube, the outer acute or subacuminate, the inner obtuse or rounded; petals obovate, obtuse, erect, 4.5 mm. long, 2.2 mm. wide; filaments slender above the connate bases, the longer stamens about equaling the petals; carpels densely pilose; fruiting calyx somewhat accrescent, firm, 4.5–5 mm. long, enclosing the base of the fruit, the latter very slightly curved; seed 1 cm. long.

PANAMA: foothills of Garagará, Sambú Basin, southern Darién, altitude 30–500 meters, February, 1912, *H. Pittier 5613* (type in U. S. National Herbarium, No. 715887); in forests, Loma de La Gloría, near Fató (Nombre de Dios), Province of Colón, altitude 10–104 meters, August 23, 1911, *H. Pittier 4247*.

No. 4247 is said to be a vine with yellowish flowers. The species is well distinguished by the griseous pubescence of the panicles, lower leaf surface, and calyx, and by the long pedicels.

Two new species of Cuscuta from Peru

T. G. YUNCKER

(WITH TWO TEXT FIGURES)

Cuscuta lucidicarpa sp. nov.

Stems slender. Flowers 3–4 mm. long, more or less papillate, subsessile or sessile, borne singly or in few-flowered clusters; calyx mostly red, scarcely enclosing the corolla tube, divided to the middle; lobes triangular-ovate, obtuse, scarcely, or not at all, overlapping; corolla campanulate or somewhat globular; lobes reddish, triangular-ovate, acutish, connivent or spreading; anthers oval and subsessile on short, stout filaments; scales reaching the stamens or slightly shorter, oblong, fringed with short processes, bridged low; styles subulate and tapering from the conical ovary. Capsule depressed-globose, becoming very thin and semi-transparent, circumscissile, carrying the withered corolla about its upper part; seeds four, triangular, hilum short.

This species belongs in subsection SUBULATAE near *Cuscuta boliviana* Yuncker from which it differs in its shorter filaments, more subulate styles and in not having overlapping or carinate calyx lobes.

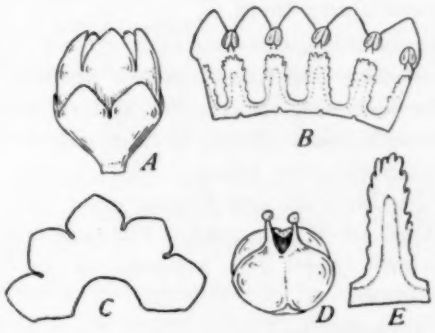

FIG. 1. CUSCUTA LUCIDICARPA Yuncker. A. Flower, × 5. B. Opened corolla, × 5. C. Opened calyx, × 5. D. Capsule, × 5. E. Individual scale, × 10.

Collected by McBride and Featherstone (*No. 1035*) at Tarma, Peru, June 1–6, 1922. The type is in the Field Museum Herba-

rium (sheet No. 517, 559); a duplicate is in the author's herbarium.

Cuscuta rubella sp. nov.

Stems slender. Flowers 2–2.5 mm. long, sessile, in dense, small, few-flowered glomerules; calyx red, somewhat fleshy, shorter than the corolla tube, deeply divided and loose about the corolla; lobes more or less uneven, oval, obovate or sometimes spatulate, obtuse; corolla reddish in the exposed part, more or less globular, furrowed along the stamen attachments, papillate in the lower part of the tube; lobes shorter than the tube, triangular, acute, upright or spreading; anthers large, oval, subsessile on very short filaments, or sessile; scales reaching the anthers, narrowly oblong, fringed with few, short processes, bridged low; subulate styles tapering from the ovary giving it a conical appearance. Mature capsules not seen but evidently they would be circumscissile and carry the withered corolla about them.

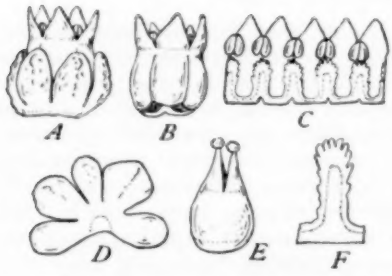

FIG. 2. CUSCUTA RUBELLA Yuncker. A. Flower, × 5. B. Corolla, × 5. C. Opened corolla, × 5. D. Opened calyx, × 5. E. Ovary, × 5. F. Individual scale, × 10.

The flowers of this species are very attractive with their red calyxes and corollas and bright yellow anthers. It is closely allied with the foregoing species, but differs in having smaller, sessile flowers with fleshy, deeply divided calyxes and with oval, obovate or spatulate calyx lobes.

Collected by McBride and Featherstone (*No. 371*) at Matucana, Peru, April 12–May 3, 1922. The type is in the Field Museum Herbarium (sheet No. 516,906); a duplicate is in the author's herbarium.

DEPAUW UNIVERSITY

INDEX TO AMERICAN BOTANICAL LITERATURE
1915-1922

The aim of this Index is to include all current botanical literature written by Americans, published in America, or based upon American material; the word America being used in the broadest sense.

• Reviews, and papers that relate exclusively to forestry, agriculture, horticulture, manufactured products of vegetable origin, or laboratory methods are not included, and no attempt is made to index the literature of bacteriology. An occasional exception is made in favor of some paper appearing in an American periodical which is devoted wholly to botany. Reprints are not mentioned unless they differ from the original in some important particular. If users of the Index will call the attention of the editor to errors or omissions, their kindness will be appreciated.

This Index is reprinted monthly on cards, and furnished in this form to subscribers at the rate of three cents for each card. Selections of cards are not permitted; each subscriber must take all cards published during the term of his subscription. Correspondence relating to the card issue should be addressed to the Treasurer of the Torrey Botanical Club.

Anderson, M. Detection of overgrazing by means of indicator-plants. Trans. Utah Acad. Sci. **2**: 56–58. 1921.

Arber, E. A. N. Devonian floras. Pp. i–xlv + 1–100. *f. 1–47.* Cambridge [England]. 1921.

A study of the origin of Cormophyta.

Baez, J. R. Breve noticia sobre la vegetación de los departamentos Parana y Diamante (Entre Rios [Argentina]). Bol. Minist. Agr. Nac. [Argentina] **27**: 465–475. S 1922.

Belyea, H. C. A suggestion for forest regions and forest types as a basis of management in New York State. Jour. For. **20**: 854–868. D 1922. [With map.]

Bitter, G. *Polylepis, Margyricarpus.* In Herzog, T., Die von Dr. Th. Herzog auf seiner zweiten Reise durch Bolivien in den Jahren 1910 und 1911 gesammelten Pflanzen,—VI. Meded. Rijk's Herb. Leiden **46**: 2, 3. 1922.

Bower, F. O. The primitive spindle as a fundamental feature in the embryology of plants. Proc. Roy. Soc. Edinburgh **43**: 1–36. *f. 1–26.* 4 N 1922.

Britton, E. G. Holly, laurel and winterberry. Jour. N. Y. Bot. Gard. **23**: 177–181. D 1922.

Carleton, M. A. Note on the *Fusarium* wilt disease of bananas. Science II. **56**: 663, 664. 8 D 1922.

Chaney, R. W. The flora of the Eagle Creek formation. Contrib. Walker Mus. **2**: 115–182. *pl. 5–22.* Jl 1920.

Czartkowski, A. Nouvelles recherches sur la formation de l'anthocyane chez *Tradescantia viridis*. Compt. Rend. Soc. Sci. Varsovie **8**: 866, 867. D 1915.

Davis, B. M. An attempt to improve through selection the style-length and fertility of *Oenothera brevistylis*. Genetics **7**: 590–596. N 1922.

Eyster, W. H. Inheritance of zigzag culms in maize. Genetics **7**: 559–567. N 1922.

Eyster, W. H. The intensity for linkage between the factors for sugary endosperm and for tunicate ears [of maize] and the relative frequency of their crossing over in microspore and megaspore development. Genetics **7**: 597–601. N 1922.

Fitzpatrick, H. M. Edible and poisonous mushrooms: hints to the collector. Cornell Rural School Leafl. **16**: 93–101. S 1922. [Illust.]

Fürth, P. Zur Biologie und Mikrochemie einiger *Pirola*-Arten. Sitzungsber. Akad. Wissensch. Wien Abt. 1. **129**: 559–588. *pl. 1.* 1920.

Garcia, A. Cartilla objectiva. Pp. 1–164. Popayan, Colombia. D 1919.

Contains accounts of many economic and other plants.

Garrett, A. O. Forest tree diseases [of Utah]. Trans. Utah Acad. Sci. **2**: 182–189. 1921.

Girola, C. D. Enfermedades del tomate en Argentina:—Podredumbre apical (*Fusarium* sp.), Antracnosis (*Colletotrichum phomoides* Sacc.) y Peronospora (*Phytophthora infestans* De Bary). Bol. Minist. Agr. Nac. [Argentina] **27**: 503–505. S 1922. [Illust.]

Guilliermond, A. Nouvelles observations cytologiques sur les Saprolegniacées. Cellule **32**: 429–454. *pl. 1–3.* 1922.

Hallier, H. *Condalia.* In Herzog, T., Die von Dr. Th. Herzog auf seiner zweiten Reise durch Bolivien in den Jahren 1910 und 1911 gesammelten Pflanzen,—VI. Meded. Rijk's Herb. Leiden **64**: 9. 1922.

Hallier, H. Convolvulaceae. In Herzog, von T., Die von Dr. Th. Herzog auf seiner zweiten Reise durch Bolivien in den Jahren 1910 und 1911 gesammelten Pflanzen,—VI. Meded. Rijk's Herb. Leiden **46**: 12.

Harms, H. Über zwei neue Arten der Gattung *Malesherbia* aus Peru. Notizbl. Bot. Gart. u. Mus. Berlin-Dahlem **8**: 209–212. 1 Jl 1922.

Malesherbia angustisecta and *M. haemantha*, spp. nov.

Hartwig, K. G. *Populus canadensis* und *Populus monilifera* Aiton. Mitteil. Deutsch. Dendr. Ges. **1922**: 170–172. 1922. [Illust.]

Heald, F. D. Some suggestions for teaching mycology. Trans. Am. Micr. Soc. **41**: 175–178. O 1922.

Henrard, J. T. *Paspalum hydrophylum* spec. nov. aus Paraguay. Meded. Rijk's Herb. Leiden **45**: 1, 2. 1922. [Illust.]

Henrard, J. T. Two new grasses from Paraguay. Meded. Rijk's Herb. Leiden **47**: 1–4. 1922. [Illust.]

Paspalum plumosum and *P. caaguazuense*, spp. nov.

Herrera, F. Las Cactaceas del departamento del Cuzco [Peru] (*cont.*). Arch. Asoc. Peruana Progr. Ci. **2**: 68–73. *pl. 1–6.* 1922.

[Herzog, T.] Die von Dr. Th. Herzog auf seiner zweiten Reise durch Bolivien in den Jahren 1910 und 1911 gesammelten Pflanzen. VI. Meded. Rijk's Herb. Leiden **46**: 1–31. 1922.

Includes *Enneatypus* and *Wernhamia*, gen. nov., and new species in *Ruprechtia* (1), *Alternanthera* (2), *Gomphrena* (1), *Tournefortia* (1). *Psychotria* (1), *Borreria* (3).

Huber, B. Zur Biologie der Torfmoororchidee *Liparis Loeselii* Rich. Sitzungsber. Akad. Wissensch. Wien Abt. 1. **130**: 307–328. *pl. 1.* 1921.

Irmscher, E. Pflanzenverbreitung und Entwicklung der Kontinente. Mitteil. Institut. Allg. Bot. Hamburg **5**: 17–235. 1922.

Jones, C. Common forest trees of Virginia. Virginia Geol. Commission Office State For. Bull. 26: 1–64. Au 1922.

Juday, C. Limnological observations on Lake George [New York]. In Needham, J. G., *et al.*, A biological survey of Lake George, N. Y. 37–51. 1922.

Jung, M. J. Über den Nachweis und die Verbreitung des Chlors im Pflanzenreiche. Sitzungsber. Akad. Wissensch. Wien Abt. 1. **129**: 297–340. *pl. 1.* 1920.

Kirstein, K. Sero-diagnostische Untersuchungen uber die Verwandschaften innerhalb der Pflanzengruppe der Gymnospermae. Bot. Archiv. **2**: 57–79. 15 Au 1922.

Klein, G. Studien über das Anthochlor. Sitzungsber. Akad. Wissensch. Wien Abt. 1. **129**: 341–396. *pl. 1.* 1920.

Korstian, C. F. Evaporation and soil moisture in relation to forest planting. Trans. Utah Acad. Sci. **2**: 116, 117. 1921.

Korstian, C. F. Relation of precipitation to height growth of forest tree saplings. Trans. Utah Acad. Sci. **2**: 260–268. 1921.

Korstian, C. F., & Long, W. H. The western yellow pine mistletoe: Effect on growth and suggestions for control. U. S. Dept. Agr. Bull. 1112: 1–35. *pl. 1–5.* 21 O 1922.

Kränzlin, F. Über einige Orchideen. In Mitteliungen aus dem Herbar des Instituts für allgemeine Botanik. Mitteil. Institut. Allg. Bot. Hamburg **5**: 236–240. 1922.

Krause, K. Loranthaceae peruvianae novae. Notizbl. Bot. Gart. u. Mus. Berlin-Dahlem **8**: 206–208. 1 Jl 1922.

New species in *Aetanthus* (1) and *Psittacanthus* (2).